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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/721,221	11/26/2003	Eric A. Merz	116594	5748
25944	7590	07/12/2006		
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			EXAMINER GARCIA JR, RENE	
			ART UNIT	PAPER NUMBER
			2853	

DATE MAILED: 07/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/721,221	Applicant(s) MERZ ET AL.	
	Examiner Rene Garcia, Jr.	Art Unit 2853	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 April 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,4-31 and 37-50 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,4-13,27-31,37,38 and 44-50 is/are rejected.
- 7) ☐ Claim(s) 14-26 and 39-43 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 4-13, 26, 27, 30, 31, 37, 38, 44-47 and 50 are rejected under 35 U.S.C. 102(e) as being anticipated by Hilton et al. (US 2005/0024457)

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention “by another,” or by an appropriate showing under 37 CFR 1.131.

#### **Hilton et al. discloses the following claimed limitations:**

\*regarding claims 1 and 37, fluid ejector carriage assembly, comprising:

\*thermally-conductive fluid ejector carriage device/**manifold, 210/** (fig. 2, paragraph 0054-0055; manifold/210/ is included in the fluid ejector head/200/ which is a device inserted/mounted into a carriage)

\*fluid ejector module/**thermal fluid ejector die module, 250/** (fig. 2; paragraphs 0054-0055) in thermal contact with the thermally-conductive fluid ejector carriage device/210/

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\*wherein the thermally-conductive fluid ejector carriage device/210/ is molded from a polymer material containing at least a base polymer and at least one thermally-conductive filler material (paragraphs 0055; 0034-0039)

\*regarding claims 4 & 6, at least one thermally-conductive filler material has a thermal conductivity greater than about 10 W/m°C (paragraph 0037)

\*regarding claim 5, at least one thermally-conductive filler material has a thermal conductivity less than 100 W/m°C (paragraph 0037)

\*regarding claim 7, thermally-conductive filler material is a graphite material (paragraph 0039)

\*regarding claim 8, graphite material is formed using a petroleum pitch base material (paragraph 0039)

\*regarding claim 9, thermally-conductive filler material is a ceramic material (paragraph 0039)

\*regarding claim 10, ceramic material is at least one of boron nitride and aluminum nitride (paragraph 0039)

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\*regarding claim 11, base polymer is at least one of liquid crystal polymer, polyphenylene sulfide and polysulfone (paragraph 0037)

\*regarding claim 12, base polymer is chemically resistant to ink (inherent feature of Cool Poly E20<sup>TM</sup>; paragraph 0037; supplied non-patent literature on Cool Poly® E2 Series LCP & cited (with this Office Action) Thermally Conductive Polymers literature)

\*regarding claim 13, thermally-conductive fluid ejector carriage device and fluid ejector module are made of materials having similar coefficient of thermal expansion (paragraph 0034)

\*regarding claims 27 and 44-46, separate heat sink/260/ is mounted in contact with the thermally-conductive fluid ejector carriage device/210/ (fig. 2; paragraphs 0054 & 0056)

\*regarding claims 30 and 47, contact between the thermally-conductive fluid ejector carriage device/20/ and the separately mounted heat sink/260/ comprises at least a temporary bond between the thermally-conductive fluid ejector carriage device/210/ and the separately mounted heat sink/260/ (paragraph 0054 – additional thermal dissipation when required)

\*regarding claims 31 and 50, contact between the thermally-conductive fluid ejector carriage device and the separately mounted heat sink is augmented with at least one mechanical device or structure (paragraph 0056 – fastening)

\*regarding claim 38, establishing contact between the thermal fluid ejector module/250/ and the thermally-conductive polymer carriage device/210/ by force-fitting at least one thermal fluid ejector module/250/ into a suitably sized receiving area in the thermally-conductive polymer carriage device/210/ so that the fluid ejector module is exposed to a suitable thermally-conductive contact area on an internal face of the receiving area (fig. 2 and 3; paragraphs 0040 & 0055)

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 28, 29, 48 and 49 are rejected under 35 U.S.C. 103(a) as being obvious over Hilton et al. (US 2005/0024457) in view of Berg et al. (US 2002/0003550).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in

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the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(l)(1) and § 706.02(l)(2).

**Hilton et al. discloses all the claimed limitations except for the following:**

\*regarding claims 28 and 48, contact between the thermally-conductive fluid ejector carriage device and the separately mounted heat sink is augmented with at least one compliant, thermally-conductive pad

\*regarding claims 29 and 49 contact between the thermally-conductive fluid ejector carriage device and the separately mounted heat sink is augmented with at least one thermally-conductive heat sink compound

**Berg et al. disclose the following:**

\*regarding claims 28 and 48, contact between the thermally-conductive fluid ejector carriage device and the separately mounted heat sink is augmented with at least one compliant, thermally-conductive pad/layer 19/ (col. 3, lines 16-18) for the purpose of improving heat transfer capabilities

\*regarding claims 29 and 49, contact between the thermally-conductive fluid ejector carriage device and the separately mounted heat sink is augmented with at least one thermally-conductive heat sink compound (col. 3, lines 19-27) for the purpose of improving heat transfer capabilities

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to utilize a contact between the thermally-conductive fluid ejector carriage device and the separately mounted heat sink is augmented with at least one compliant, thermally-conductive pad; and contact between the thermally-conductive fluid ejector carriage device and the separately mounted heat sink is augmented with at least one thermally-conductive heat sink compound as taught by Berg et al. into Hilton et al. for the purposes of improving heat transfer capabilities.

*Allowable Subject Matter*

5. Claims 14-26, and 39-43 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The following is a statement of reasons for the indication of allowable subject matter: The primary reason for indicating allowable subject matter of claim 14 is the inclusion of the limitation of fluid ejector carriage assembly including a contact between the thermally-conductive fluid ejector carriage device and the fluid ejector module is augmented with at least one compliant, thermally-conductive pad. It is this limitation found in each of the claims, as it is claimed in the combination, that has not been found, taught or suggested by the prior art of record which makes these claims allowable over the prior art.

The primary reason for indicating allowable subject matter of claim 15 is the inclusion of the limitation of fluid ejector carriage assembly including a between the thermally-conductive fluid ejector carriage device and the fluid ejector module is augmented with at least one thermally-conductive heat sink compound. It is this limitation found in each of the claims, as it

is claimed in the combination, that has not been found, taught or suggested by the prior art of record which makes these claims allowable over the prior art.

The primary reason for indicating allowable subject matter of claim 16 is the inclusion of the limitation of fluid ejector carriage assembly including a contact between the thermally-conductive fluid ejector carriage device and the fluid ejector module comprises at least a temporary bond between the thermally-conductive fluid ejector carriage device and the fluid ejector module. It is this limitation found in each of the claims, as it is claimed in the combination, that has not been found, taught or suggested by the prior art of record which makes these claims allowable over the prior art.

The primary reason for indicating allowable subject matter of claim 17 is the inclusion of the limitation of fluid ejector carriage assembly including a contact between the thermally-conductive fluid ejector carriage device and the fluid ejector module is augmented with at least one mechanical device or structure. It is this limitation found in each of the claims, as it is claimed in the combination, that has not been found, taught or suggested by the prior art of record which makes these claims allowable over the prior art.

The primary reason for indicating allowable subject matter of claims 18-23 is the inclusion of the limitation of fluid ejector carriage assembly including a thermally-conductive fluid ejector carriage device further comprises a receiving area usable to receive a cartridge comprising a container that stores a fluid to be ejected by the fluid ejector module in contact with a fluid ejector module. It is this limitation found in each of the claims, as it is claimed in the combination, that has not been found, taught or suggested by the prior art of record which makes these claims allowable over the prior art.

The primary reason for indicating allowable subject matter of claims 24-25 is the inclusion of the limitation of fluid ejector carriage assembly including a thermally-conductive fluid ejector carriage device further comprises multiple receiving areas usable to receive multiple fluid ejector modules. It is this limitation found in each of the claims, as it is claimed in the combination, that has not been found, taught or suggested by the prior art of record which makes these claims allowable over the prior art.

The primary reason for indicating allowable subject matter of claim 26 is the inclusion of the limitation of fluid ejector carriage assembly including a thermally-conductive fluid ejector carriage device further comprises an integral molded heat sink. It is this limitation found in each of the claims, as it is claimed in the combination, that has not been found, taught or suggested by the prior art of record which makes these claims allowable over the prior art.

The primary reason for indicating allowable subject matter of claim 39 is the inclusion of the method step of dissipating heat that includes providing at least one receiving area that is suitably sized to accept at least one integral print cartridge comprising a fluid ejector module assembly and a container that stores a fluid to be ejected by fluid ejector module. It is this step found in each of the claims, as it is claimed in the combination, that has not been found, taught or suggested by the prior art of record which makes these claims allowable over the prior art.

The primary reason for indicating allowable subject matter of claim 40 is the inclusion of the method step of dissipating heat that includes establishing the contact between the fluid ejector module and the thermally-conductive polymer carriage device further comprises forming at least a temporary bond between the fluid ejector module and the thermally-conductive polymer carriage device. It is this step found in each of the claims, as it is claimed in the

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combination, that has not been found, taught or suggested by the prior art of record which makes these claims allowable over the prior art.

The primary reason for indicating allowable subject matter of claim 41 is the inclusion of the method step of dissipating heat that includes augmenting the contact between the fluid ejector module and the thermally-conductive polymer carriage device using at least one compliant, thermally-conductive pad. It is this step found in each of the claims, as it is claimed in the combination, that has not been found, taught or suggested by the prior art of record which makes these claims allowable over the prior art.

The primary reason for indicating allowable subject matter of claim 42 is the inclusion of the method step of dissipating heat that includes augmenting the contact between the fluid ejector module and the thermally-conductive polymer carriage device using at least one thermally-conductive heat sink compound. It is this step found in each of the claims, as it is claimed in the combination, that has not been found, taught or suggested by the prior art of record which makes these claims allowable over the prior art.

The primary reason for indicating allowable subject matter of claim 43 is the inclusion of the method step of dissipating heat that includes augmenting the contact between the fluid ejector module and the thermally-conductive polymer carriage device using at least one mechanical device or structure. It is this step found in each of the claims, as it is claimed in the combination, that has not been found, taught or suggested by the prior art of record which makes these claims allowable over the prior art.

*Response to Arguments*

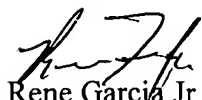
7. Applicant's arguments with respect to pending claims have been considered but are moot in view of the new ground(s) of rejection.


*Communications with the USPTO*

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rene Garcia, Jr. whose telephone number is (571) 272-5980. The examiner can normally be reached on M-F 8:00AM - 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen D. Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Rene Garcia Jr  
07/06

  
**STEPHEN MEIER**  
**SUPERVISORY PATENT EXAMINER**